

REMARKS

Claims 1 and 14 have been amended by adding the recital "and additional amount of ammonia and/or amine is/are controlled between 0.001 and 20 by weight depending on the desirable curing temperature." This added recital is supported by the disclosure at p. 12, lines 12-17, in the original specification. Since the present Amendment does not increase either the total number of claims or the number of independent claims, no additional fee is necessary.

Claims 1, 5 - 10, 12 and 14 are in the application. Of these, method claims 9, 10 and 12 are withdrawn from consideration. Claims 1 (independent; amended), 5 - 8 (dependent on 1) and 14 (independent; amended) have been rejected under 35 U.S.C. §103(a) as unpatentable over various combinations of references, discussed below.

The Claimed Invention

The gist of the present invention is that ammonia and/or amine is or are used as catalyst for condensation reaction of phenolic compound and aldehyde and/or aldehyde donor.

Ammonia and/or amine may be added in an amount between 0.001 and 20% by weight to the phenolic resin. By additional amount of the ammonia and/or amine, the temperature to start curing of the resulting precondensation polymer of the thermosetting resin (the curing rate suddenly becomes large at this temperature) can be controlled (p. 12, lines 11-17 in applicants' specification). As noted above, each of the rejected independent claims (1 and 14) has been amended herein to recite these features.

Further in the specification, it is described that in the case where phenolic resin produced by the condensation of phenolic compound and aldehyde and/or aldehyde donor by using ammonia and/or amine is used, the curing rate of the phenolic resin becomes suddenly large at a temperature higher than a fixed temperature, so that the material to be molded in which the precondensation polymer of B-stage of the

phenolic resin is impregnated has a good stability below the aforesaid fixed temperature and a high curing speed above the aforesaid fixed temperature. Accordingly, the material to be molded has a long storage life at a temperature below the fixed temperature and the material to be molded may be cured in a shorter time by heating at a temperature higher than the fixed temperature.

Further, the fact that the curing temperature can be controlled by the additional amount of amine is shown in Table 1(p. 36 in applicants' specification).

Still further, sulfomethylation and/or sulfimethylation of the phenolic resin improve stability of the phenolic resin at B-stage.

Accordingly, to attain the effects of the present invention, long storage life and quick cure, three factors, sulfo and/or sulfimethylation of phenolic resin, putting the phenolic resin at B-stage, control of the additional amount of ammonia and/or amine are essential.

Since the material to be molded of the present invention has the above-mentioned advantages, the material is very useful as interior material of cars which are mass-produced.

The Rejections

Claims 1, 5 and 6 have been rejected under 35 U.S.C. §103(a) as unpatentable over any of Yuka '329, Yuka '870, Yuka '192 (*sic*; should be '092) or Yuka '609, each in view of Taylor (section 3 of the Office Action), Benzinger (section 4 of the Office Action) or Casadevall (section 5 of the Office Action). Each Yuka reference is asserted to teach a sulfomethylated condensation polymer comprising a phenol and aldehyde and/or aldehyde donor, and the phenol aldehyde resin is then cured with an amine compound, the resin having use as a binder, impregnate or adhesive; further, it is asserted that each Yuka reference teaches the use of the ammonia and/or amine catalyst, but it is acknowledged that none of the Yuka references teaches that the resin should be advanced to the B-stage of curing. Taylor, Benzinger and Casadevall are severally relied on for the feature of advancing polymerization to the B-stage for various reasons which are relied on as making it obvious to cure the Yuka resins to the B-stage.

Claims 6 - 8 and 14 have been rejected under 35 U.S.C. §103(a) as unpatentable over Franz et al. (section 6 of the Office Action) or Burke (section 7 of the Office Action), each in view of any of Yuka '329, Yuka '870, Yuka '192 or Yuka '609. Franz et al. and Burke are respectively cited for a disclosure of fibers impregnated with a phenol formaldehyde resin wherein a metal foil is glued to one or both sides of the impregnated fibers and for a disclosure of a corrugated fiberboard that resists deterioration in strength when in the presence of water. The Office Action acknowledges that neither reference teaches impregnation "with the claimed sulfomethylated or sulfimethylated phenolic resin" but relies on the Yuka references for that feature.

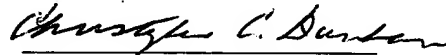
In the Office Action (p. 9), the Examiner refers to applicants' previous arguments concerning the recital in claims 1 and 14 of compositions produced using ammonia and/or amine as a catalyst, viz., that the ammonia is both stable below a prescribed temperature and quickly cured above this temperature, that the invention confers an unusual degree of control since adjusting the addition of ammonia and/or amines as a catalyst enables adjustment to the start temperatures. As understood, the Examiner agrees that "The prior art relied upon fails to disclose or suggest this concept," but notes that "said concept is not implicitly or explicitly claimed."

It is submitted that the further recital herein added to claims 1 and 14, "and additional amount of ammonia and/or amine is/are controlled between 0.001 and 20 by weight depending on the desirable curing temperature," now explicitly claims this feature of the invention. In response to the assertion that "said control does not inherently distinguish the claimed invention from the invention rendered obvious by the prior art" because "Since each Yuka reference teaches the use of said ammonia and/or amine catalyst, the applied art reads on each limitation of the claimed invention," it is submitted that, as explained above, the defined feature affects properties of the claimed material and as such is entitled to weight as a limitation in claims to the material.

Therefore it is further submitted that the aforesaid recital herein added distinguishes claims 1 and 14 patentably over the applied references and any proper combinations thereof, and that claims 5 - 8 are also allowable by virtue of their dependence on claim 1.

For the foregoing reasons, it is believed that this application is now in condition for allowance. Favorable action thereon is accordingly courteously requested.

Respectfully,




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I hereby certify that this paper is being deposited this date with the U.S. Postal Service as first class mail addressed to Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.



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